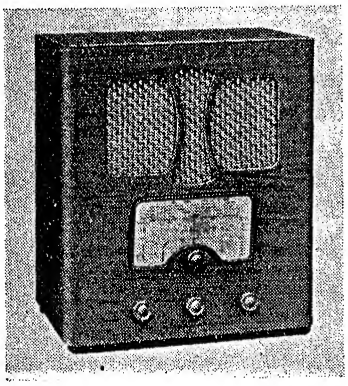
TRADER ' SERVICE SHEET

315

ALBA 801

3-VALVE AC RECEIVER



COVERING a short-wave range of 16·5-50 m, the Alba 801 is a 3-valve (plus rectifier) AC 3-band receiver, suitable for mains of 190-250 V, 40-100 C/S. Provision is made for the connection of an extension speaker.

CIRCUIT DESCRIPTION

Aerial input via coupling coils **L1** (SW), plus **L2** (MW), plus **L3** (LW) to single-tuned circuits comprising **L4** (SW), **L5** (MW), plus **L6** (LW), tuned by **C17**, which precede variable-mu pentode valve (**V1, Mullard metallised VP4B**) operating as RF amplifier with gain control by potentiometer **R2** which varies GB applied. One end of **R2** is connected to the aerial lead so that the aerial circuit is progressively damped as **V1** gain is reduced.

Tuned-secondary transformer coupling by **L10, L13, C21** (SW), **L11, L14** (MW), plus **L12, L15** (LW) tuned by **C21**, between **V1** and pentode detector valve (**V2, Mullard metallised SP4B**) which operates on grid leak system with **C5, R3. C4** removes a peak which occurred on MW, whilst LW coupling coil **L12** operates as an RF choke on MW. Reaction is applied from anode by coils **L7** (SW), **L8** (MW), plus **L9** (LW), and controlled by variable condenser **C18**. RF filtering in anode circuit by **C8** (SW) and **C3** (MW and LW).

Resistance-capacity coupling by **R6, C9** and **R7**, via RF stopper **R8**, between **V2** and pentode output valve (**V3, Mullard PenA4**). Fixed tone correction in anode circuit by **C10**. Provision for connection of high impedance external speaker across primary of internal speaker input transformer **T1**.

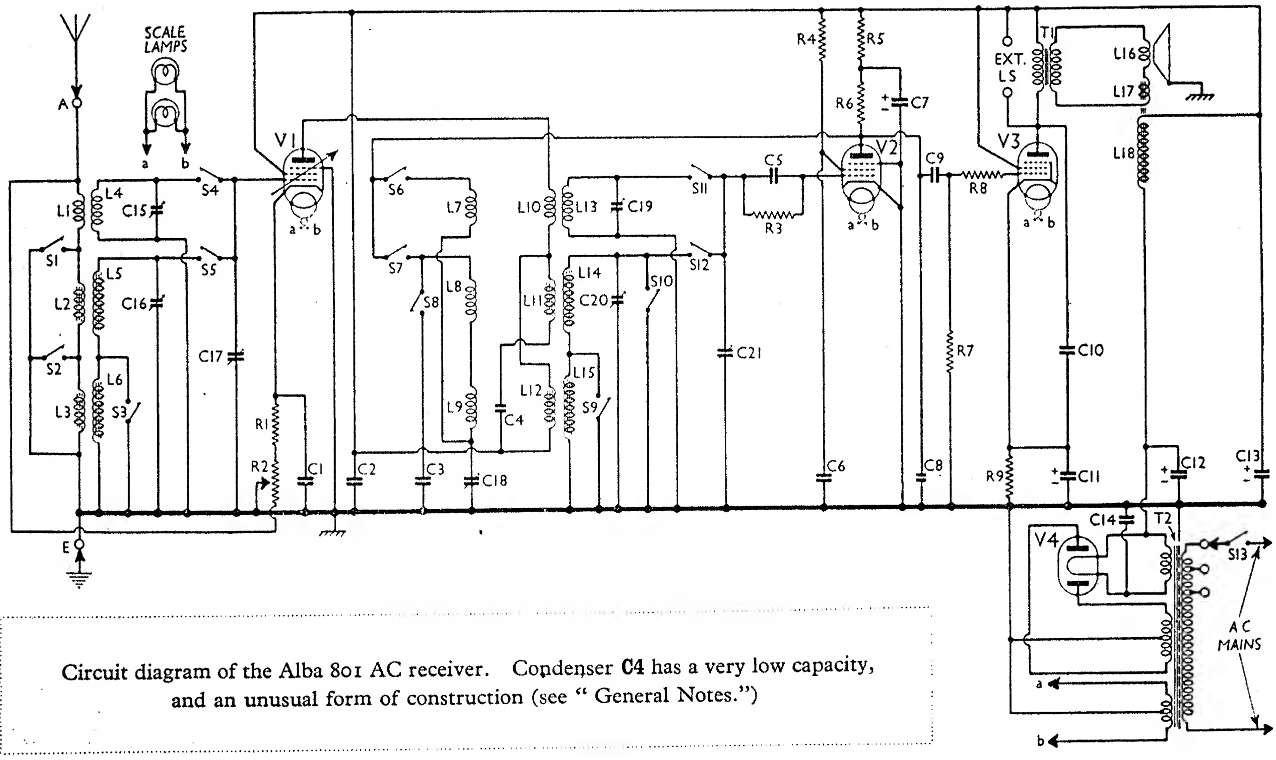
HT current is supplied by full-wave rectifying valve (**V4, Mullard DW4/350**). Smoothing by speaker field **L18** and dry electrolytic condensers **C12, C13**. RF filtering in rectifier circuit by **C14**.

COMPONENTS AND VALUES

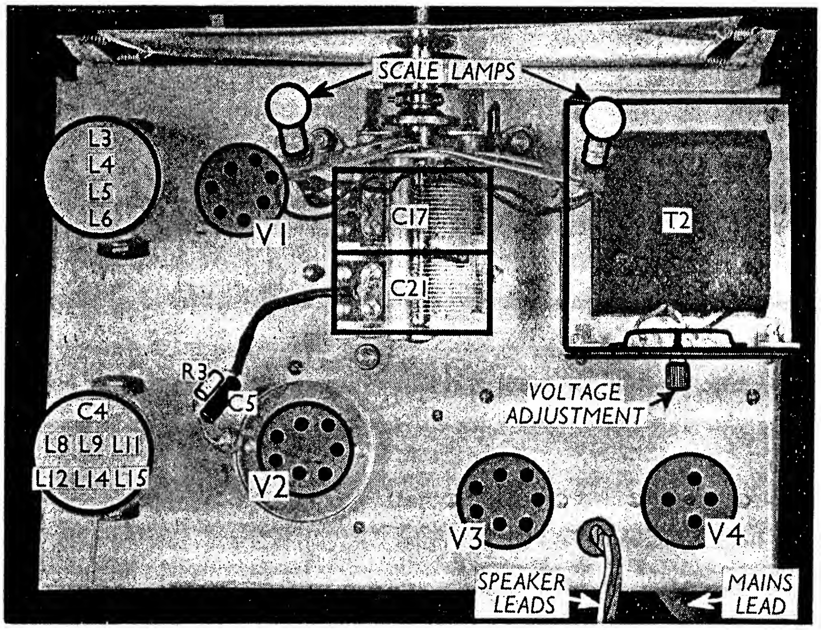
	RESISTANCES	Values (ohms)
R1	V1 fixed GB resistance ..	150
R2	V1 gain and aerial shunt control	25,000
R3	V2 CG resistance	1,000,000
R4	V2 SG HT feed	500,000
R5	V2 anode decoupling ..	25,000
R6	V2 anode load	100,000
R7	V3 CG resistance	250,000
R8	V3 CG RF stopper	100,000
R9	V3 GB resistance	150

	CONDENSERS	Values (μF)
C1	V1 cathode by-pass	0·1
C2	HT circuit RF by-pass ..	0·1
C3	V2 anode MW and LW RF by-pass	0·0002
C4	Part of V1 anode MW coupling circuit	Very low
C5	V2 CG condenser	0·0001
C6	V2 SG decoupling	0·1
C7*	V2 anode decoupling ..	2·0
C8	V2 anode SW RF by-pass ..	0·000015
C9	V2 to V3 AF coupling ..	0·01
C10	Fixed tone corrector	0·01
C11*	V3 cathode by-pass	25·0
C12*	HT smoothing ..	8·0
C13*	HT smoothing ..	12·0
C14	V4 heater RF by-pass ..	0·005
C15‡	Aerial circuit SW trimmer ..	0·00003
C16‡	Aerial circuit MW trimmer ..	0·00003
C17†	Aerial circuit tuning	—
C18†	Reaction control	0·0001
C19‡	RF trans. SW trimmer ..	0·00003
C20‡	RF trans. MW trimmer ..	0·00003
C21†	RF trans. sec. tuning ..	—

* Electrolytic. † Variable. ‡ Pre-set.



Circuit diagram of the Alba 801 AC receiver. Condenser **C4** has a very low capacity, and an unusual form of construction (see " General Notes.")



Plan view of the chassis. **R3** and **C5** are connected in the lead to the top connector of **V2**.

	OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial SW coupling coil		0·6
L2	Aerial MW coupling coil		0·2
L3	Aerial LW coupling coil		40·0
L4	Aerial SW tuning coil		0·05
L5	Aerial MW tuning coil		1·5
L6	Aerial LW tuning coil		9·0
L7	SW reaction coil		20·0
L8	MW reaction coil		0·6
L9	LW reaction coil		1·6
L10	RF trans. SW primary		20·0
L11	RF trans. MW primary		0·2
L12	RF trans. LW primary		40·0
L13	RF trans. SW secondary		0·05
L14	RF trans. MW secondary		1·5
L15	RF trans. LW secondary		13·0
L16	Speaker speech coil		2·0
L17	Hum neutralising coil		0·15
L18	Speaker field coil		1,000·0
T1	Speaker input trans.	Pri.	480·0
		Sec.	0·5
T2	Mains trans.	Pri., total	53·0
		Heater sec.	0·3
		Rect. heat. sec.	0·4
		HT sec., total	500·0
S1-S12	Waveband switches		—
S13	Mains switch, ganged R2		—

DISMANTLING THE SET

Removing Chassis.—To remove the chassis from the cabinet, remove the four control knobs (recessed grub screws) and the four bolts (with washers and rubber washers) holding the chassis to the bottom of the cabinet, when the chassis can be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

When replacing, see that there is a rubber washer on each of the chassis bolts, between the chassis and the bottom of the cabinet.

If it is desired to free the chassis entirely, unsolder the speaker leads and *when replacing*, connect them as follows :—F, blue ; 3, black ; 1 and F joined, red. The white lead goes to the earthing tag on one of the screws holding the transformer to the speaker frame.

Removing Speaker.—To remove the speaker from the cabinet, unsolder the leads and remove the nuts from the four ornamentally-headed screws and the two round-head wood screws holding the sub-baffle to the front of the cabinet. *When replacing*, see that the transformer is on the right and connect the leads as above.

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 3) are those measured in our receiver when it was operating on mains of 228 V, using the 220 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP4B	271	7·0	271	2·8
V2 SP4B	98	1·2	37	0·4
V3 PenA4	252	41·0	271	6·4
V4 DW4/350	311†	—	—	—

† Each anode, AC.

GENERAL NOTES

Switches.—S1-S12 are the waveband switches, in two rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams on page IV. The table (page IV) give the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates *open*, and **C** *closed.*

S13 is the QMB mains switch, ganged with the gain control **R2.**

Coils.—L1, L2 and **L7, L10, L13** are in two unscreened units beneath the chassis. **L3-L6** and **L8, L9, L11, L12, L14, L15** are in two screened units on the chassis deck. The latter also contains **C4.**

Condenser C4.—This is a small capacity, formed of a pair of wires wound in one of the slots in the lower coil former of the second screened coil unit. Superficially it resembles an ordinary coil, but it can be recognised by the fact that it is wound in the narrowest slot in the lower former, and has a pinkish colour.

Scale Lamps.—These are two Osram MES types, rated at 6·2 V, 0·3 A.

External Speaker.—Two terminals are provided on the internal speaker connection panel for a high resistance (about 7,000 O) external speaker.

Condensers C12, C13.—These are

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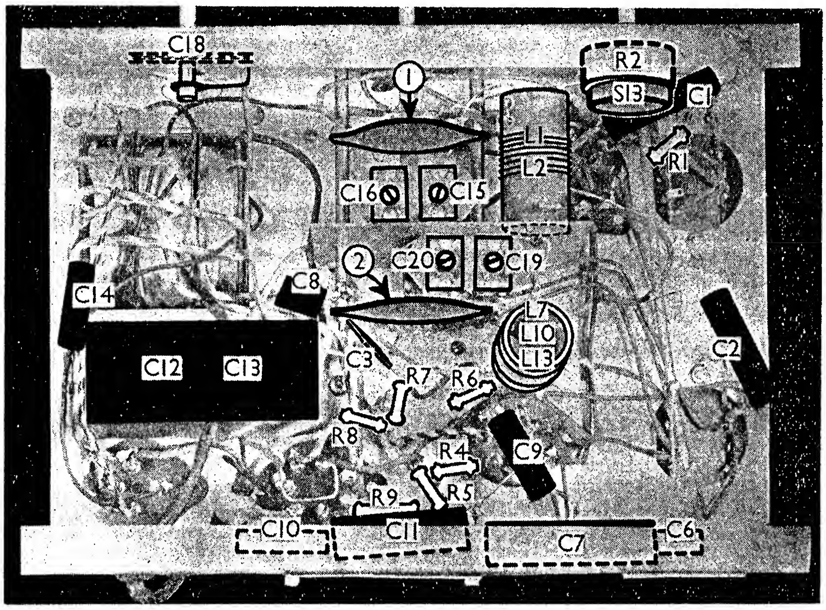


Under-chassis view. Diagrams of the switch units are overleaf.

ALBA 801—*Continued*

two dry electrolytics in a single carton beneath the chassis, with a common negative (black) lead. The red lead is the positive of **C12** ($8\mu F$) and the yellow the positive of **C13** ($12\mu F$).

CIRCUIT ALIGNMENT

With gang at maximum, scale pointer should be horizontal. When aligning, keep gain control at maximum, and reaction control at a point where the set is just short of oscillation. Connect signal generator to **A** and **E** sockets.

Switch set to MW, tune to 200 m on scale, feed in a 200 m (1,500 KC/S) signal, and adjust **C20**, then **C16**, for maximum output.

Switch set to SW, tune to 20 m on scale, feed in a 20 m (15 MC/S) signal, and adjust **C19**, then **C15**, for maximum output.

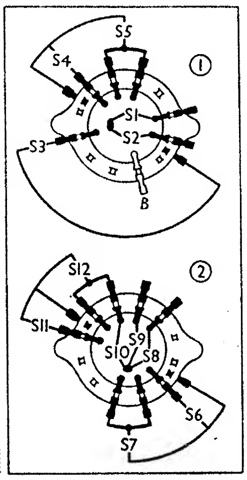
There are no LW alignment adjustments.

SWITCH TABLE

Switch	SW	MW	LW
S1	C	—	—
S2	—	C	—
S3	—	C	—
S4	C	—	—
S5	—	C	C
S6	C	—	—
S7	—	C	C
S8	—	C	C
S9	C	C	—
S10	C	—	—
S11	C	—	—
S12	—	C	C

SWITCH DIAGRAMS

Switch diagrams, as seen from the front of the under-side of the chassis.



More Valve Trouble

AN Ultra 22 superhet developed intermittently a low-pitched crackling noise, on which variation of the volume control had no effect. With a strong station tuned in, the neon tuning indicator column was seen to shorten during the period of crackling, suggesting that the AVC bias was being reduced.

As the noise persisted with the volume control at minimum, the output stage became suspect. All resistors and condensers were checked, and found OK.

A little thinking indicated that a reduction in AVC bias in this case might be caused by a rise in the delay voltage. A prolonged voltage reading taken from the output valve cathode to chassis, showed that during the period of crackling, the bias voltage increased. An intermittently open grid seemed the possible fault then, but shorting the grid direct to chassis made no appreciable difference to the bias voltage.

The output valve itself then came under suspicion. The grid cap was unsoldered, and the lead from the interior of the valve was found not to have been tinned properly. Retinning and resoldering the cap cured the trouble. The writer has since had many similar cases with various types of valves.—H. T. COPELAND, KENTON.